

ABSTRACT

A receiver for receiving complex symbols in a radio communication system, in which a symbol arranger collects signals from at least three transmitter antennas through at least one receiver antenna over four time intervals; a channel estimator estimates at least three channel gains from the three transmitter antennas to the receiver antenna; first and second decoders each compute metrics for all possible pairs of symbols using the received signals and channel gains, and detect two symbols having a minimum metric; And a P/S (Parallel to Serial) converter arranges the detected symbols in the right order. Each decoder linearly operates the received signals and channel gains, pre-detects two symbols using threshold detection, and outputs the pre-detected symbols as final symbols if the product of the product of the pre-detected symbols and a constant determined by the channel gains is a minimum.